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New Zealand's Livestock and Meat Industry

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Foreword

New Zealand is one of the world's major producers of livestock and animal products and the second largest exporter of meat to the United States. It is also the second major world supplier of wool, providing over one-sixth of the total in recent years. Its climate and natural grasslands uniquely fit it to produce livestock and animal products, and a large part of this production enters international trade.

This study on New Zealand is one of a series designed to help the Department of Agriculture and the U.S. livestock industry keep informed of developments in meat and livestock in the major meat exporting countries of the world. In the past several years, similar studies have been made in Australia, Canada, Mexico, Central America, Argentina, and Uruguay. This study supersedes *Recent Trends in New Zealand's Livestock Industry*, FAS-M-137, June 1962.

During his visit to New Zealand, the author received the assistance of many persons working in the fields of livestock and meat production and marketing. In particular, he would like to acknowledge the assistance of the following New Zealand Department of Agriculture specialists in the preparation of this report: Miss Jean G. Miller, Superintendent, Biometrics Division; I. Watt, Director, Meat Division; W. L. Keen, Economist, New Zealand Meat and Wool Board's Economic Division; Dr. G. H. Adlam, Assistant Director, Animal Health Division; G. Anderson, General Manager, New Zealand Meat Producers Board; Sir John Ormond, Chairman, New Zealand Meat Producers Board; R. H. Scott, Director, Farm Advisory Division; R. C. Stuart, Executive Director, Agricultural Production Council; and Gordon Fowler, Meat Superintendent, Department of Agriculture, as well as the U.S. Agricultural Attache and his staff.

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Contents

Page

Summary 1
Importance of livestock industry 1

Production patterns and practices:

  Meat production, consumption 2
  Pasture improvement activity 2
  Farm machinery 3
The sheep industry 3
The beef cattle industry 3
The hog industry 4

Marketing:

  Meat export plants 5
  Livestock diseases 5
  Meat inspection service 5
  Grading meat for export 5
  Grading meat for home market 6
  Minimum prices 6
Meat Export Development Company 6
  Wool Commission 7
New Zealand Wool Board 7
New Zealand Meat Producers Board 7

The export market:

  Receipts from exports 7
  Meat exports 8
  Wool exports 8
  Hide and skin exports 8
  Tallow exports 9
Potential for increased production 10
Competition with U.S. producers 11

New Zealand's Livestock and Meat Industry

By MARTIN V. GERRITY, LIVESTOCK AND MEAT PRODUCTS DIVISION

Summary

New Zealand has a number of unique natural features, of which its generally temperate climate, favorable for grasslands, has most influenced its agriculture, which is dominated by animal production. Though nearly isolated in the South Pacific—about 1,000 miles from its nearest British Commonwealth neighbor, Australia, and several thousand miles from other major countries—New Zealand has exploited this natural advantage in livestock production to become a leading supplier of meat, animal products, and dairy products to the world. Comprised mainly of North Island and South Island (amounting to over 44,000 square miles and 58,000 square miles respectively) it stretches over 1,000 miles in a north-south direction to the east of Australia. In its isolated geographical position, Commonwealth preferences contributed to its ability to live by export of specialized classes of products.

The New Zealand economy is said to be based on grass. The combination of this natural advantage—in a climate extremely favorable to grass production—and of man-made advantages in terms of careful management and development of pastures, enables the country to support a livestock population of 57.3 million sheep, 7.2 million cattle, and 654,000 hogs. Of the 7.2 million head of cattle, about 3.8 million are beef-type animals.

New Zealand has one of the most advanced agricultural economies in the world and ranks with leading agricultural countries in output per agricultural worker. About 120,000 individuals are engaged in farming, out of New Zealand's human population of approximately 2.7 million.

For this relatively small population, per capita gross national product has been increasing steadily; in FY 1966, GNP stood at $5,261 million total and $1,965 per capita. In 1965 and 1966, per capita GNP showed gains of 7 and 6 percent, respectively.

A special feature of the New Zealand economy is its advanced welfare system, and its consequent effect on the budget. In 1966, approximately 42 percent of the Dominion's government budget went for social service and even more funds (43 percent) will be used for this purpose in 1967.

In its dependence on both exports and imports—because of the high level of specialization at home—the New Zealand economy rests to a great extent on trade with the United Kingdom. In 1965, the United Kingdom took about 49 percent of New Zealand's total exports (by value) and supplied 37 percent of total imports.

Significant economic problems at present include maintaining and increasing access to foreign markets and diversifying its foreign markets as well as its economy by increasing emphasis on industry.

In recent years, a number of factors have contributed to the advancement of the livestock and meat products industry, and its export trade. Pasture improvement activity in New Zealand has been increased significantly in recent years with remarkable success. Use of fertilizers in 1966 was at record levels. Cattle, calf, and sheep numbers have been steadily increasing; however, the hog industry has suffered a series of setbacks.

Export trade has benefited from initiation of market development programs designed to promote sales abroad of livestock and meat products. These programs have the active support of such organizations as the Meat Export Development Company, the New Zealand Wool Board, and the New Zealand Meat Producers Board.

Receipts from exports of livestock products (excluding dairy) in 1966 totaled $741 million, up from $449 million in 1954. In 1966, wool exports were the largest earners of foreign exchange, followed closely by meat.

For the future, meat production is expected to continue to increase in line with the continuing implementation of pasture improvement programs.

Importance of livestock industry

New Zealand has gained its position as one of the world's major producers of livestock and animal products by exploiting natural climatic conditions with careful pasture and management improvement programs. In addition, the natural disadvantage, that two-thirds of the land utilized is too steep to be cultivated, has caused livestock raising to take precedence over cropland.

Of New Zealand's total area of 66 million acres, more than half is utilized in some form of livestock operation. The breakdown of land utilization[1] is as follows:

	Acres
Extensive sheep farming (wool production)	8,200,000
Semi-extensive sheep farming (wool and store sheep)	14,000,000
Intensive sheep farming (fat lamb production)	4,500,000
Dairying and fat lamb production	5,000,000
Dairying	1,500,000
Intensive sheep farming and cash cropping	3,000,000
Orchards and market gardens	35,000
Indigenous forest	15,000,000
Exotic forest	900,000
Undeveloped land	14,500,000

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[1] Beef cattle are raised on sheep farms, and dairy farmers produce beef cattle by crossing dairy cows on beef bulls.

With large livestock and dairying enterprises, and a human population of only 2.7 million, wool, meat, and dairy products are produced in large quantities for export, and make the major contribution to the country's export earnings. For example, in FY 1966, New Zealand's total export receipts for all items were $1,124.2 million. On a percentage basis, the breakdown of these receipts in FY 1966 was as follows (with livestock and meat products and milk products coming to 91.2 percent of the total):

	Percent
Livestock and meat products, including wool	66.0
Milk products	25.2
Forest products	3.4
Orchards, seeds, and honey	1.8
Sea products	0.8
Other products, including manufactured goods	2.8

New Zealand exports 95 percent of its wool production, 93 percent of its lamb, 44 percent of its mutton, 54 percent of its beef and veal, 2 percent of its pig meat, and 72 percent of its offals.

Production patterns and practices

Meat production, consumption

New Zealand's total production of carcass meats had risen, by 1965, about one-sixth over the 5-year average. It totaled 1.75 billion pounds in both 1965 and 1966, compared with 1.51 billion in 1956–60. Largest gain over the 5-year average—of about one-fourth—was made in lamb, which has lead throughout the decade.

In 1966, production gains were made for both beef and lamb. Pork production declined from 98 million to 90 million pounds, while variety meats showed a slight gain from 88 million to 90 million. Beef production in 1966 totaled 580 million pounds, compared with over 1 billion pounds of lamb and mutton combined, (694 million pounds of lamb and 340 million pounds of mutton).

Table 1.—MEAT: Production by type, carcass weight, average 1956–60, annual 1961–66

Year [1]	Beef	Veal	Mutton	Lamb	Pork	Total carcass meats	Variety meats
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*
Average:							
1956–60	513	54	325	528	88	1,508	71
Annual:							
1961	475	55	377	630	87	1,624	74
1962	566	65	393	648	89	1,761	80
1963	596	60	371	648	94	1,769	84
1964	580	63	395	681	103	1,822	87
1965	553	55	380	669	98	1,755	88
1966 [2]	580	50	340	694	90	1,754	90

[1] Year ending September 30. [2] Preliminary.

For most meat items, consumption in New Zealand has not changed significantly during recent years. For example, total per capita meat consumption (excluding offals) in 1966 was 229 pounds compared with 222 in 1956–60. The major gain over this period occurred in consumption of lamb which increased from 11 to 17 pounds per person, annually. Over this same period, per capita consumption of beef, veal, mutton, and pork changed very little, with beef and pork remaining the same, veal increasing 2 pounds, and mutton declining 1 pound.

In 1966, on a per capita basis, New Zealanders consumed 100 pounds of beef, 72 pounds of mutton, 32 pounds of pork, 17 pounds of lamb, and 8 pounds of veal.

Table 2.—MEAT: Per capita consumption by type, excluding offals, average 1956–60, annual 1961–66

Year [1]	Beef	Veal	Mutton	Lamb	Pork	Total
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
Average:						
1956–60	100	6	73	11	32	222
Annual:						
1961	90	7	79	14	33	223
1962	98	8	78	18	33	235
1963	104	8	78	18	33	241
1964	98	8	77	18	36	237
1965	101	8	73	16	32	230
1966 [2]	100	8	72	17	32	229

[1] Year ending September 30, carcass weight basis. [2] Preliminary.

Pasture improvement activity

New Zealand soils are generally deficient in phosphates, and top dressing of pastures is essential for their maintenance and productivity.

Since much of the agricultural land in New Zealand was too steep to be cultivated until the advent of the aerial top-dressing industry, this land had to be fertilized by hand; this was both expensive and inefficient.

In 1965, about 12.8 million acres of land was top-dressed, 8.2 million by means of aerial operations. The number of acres top-dressed from the air increased to 9.2 million in 1966.

The amount of fertilizer and lime used in these aerial operations has increased from about 5,000 tons in 1950 to a record of 1.04 million tons in 1966.

Conditions under which fertilizer may be offered for sale in New Zealand are specified in the Fertilizer Act of 1960. This Act protects the farmer against fraudulent trade practices, and gives him exact data as to the composition of the material he purchases.

Because the use of fertilizer is so important to the agricultural economy of New Zealand, the Government pays a transportation incentive on fertilizer to promote its use throughout the country since some of the land is remote from main artery transport.

Farm machinery

New Zealand's high agricultural productivity per unit of labor is primarily attributable to natural climatic advantages; however, it has also been helped by the high degree of mechanization that has prevailed during recent years. Great progress has been made in utilizing to full advantage such modernized farm equipment as self-propelled combine harvesters, pick-up balers, heavy tractors (particularly crawler), and mobile spraying equipment.

However, the greatest break-through in mechanization was the use of airplanes to fertilize land that had previously been almost inaccessible for fertilization.

The sheep industry

Sheep raising in New Zealand is very diversified, ranging from operations that receive practically all of their profit from the sale of wool to fattening farms whose sales are from animals purchased from breeders. Briefly, the major types of sheep farm operations in New Zealand can be described as follows: (1) High hill-country farms; (2) lower hill-country farms; (3) fattening farms; (4) intermediate types; and (5) stud farms.

The high-hill-country farmer derives almost all of his income from wool and he usually has very little surplus stock for sale. These farms are generally located in the South Island and carry only about one sheep to every four acres, because of the steepness of the terrain and the low fertility of the soil.

Low-hill-country farms are found on both the North Island and the South Island and supply stock for the low country fattening farms. On the average, farms of this type will carry about two sheep per acre.

The fattening farms are located on both major islands on land of high fertility. The average carrying capacity on fattening farms generally ranges from three to six or more sheep per acre.

The intermediate farms are variations of the more specialized type, including dairy farms raising sheep.

Stud farms, though few in number, are highly specialized and are very important to the sheep farming industry. This type of farm is always located on first-class land.

On the North Island, the sheep flock consists almost invariably of Romneys, while in the south the sheep population is usually comprised of half-breed or Corriedales, with some Romneys in the lower country. The number of sheep in New Zealand in 1966 totaled 57.3 million head, up sharply from 53.7 million in 1965, and 44.5 million in 1956–60. In terms of sheep numbers, the 1966 increase was the largest ever recorded. This large gain was expected since the industry has been working at a high reproductive level, with 40 million ewes in the national flock.

Table 3.—SHEEP AND LAMBS: Number and slaughter, average 1956–60, annual 1961–66

Year	Number on farms [1]	Slaughter [2]		
		Sheep	Lambs	Total
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*
Average:				
1956–60	44,534	6,179	16,523	22,702
Annual:				
1961	48,462	7,428	19,837	27,265
1962	48,988	8,002	21,518	29,520
1963	50,190	7,219	21,308	28,527
1964	51,291	7,897	22,157	30,054
1965	53,750	7,567	21,936	29,503
1966 [3]	57,343	6,730	22,219	28,949

[1] As of June 30. [2] Year ending September 30. [3] Preliminary.

The beef cattle industry

There are very few completely beef cattle ranches in New Zealand, since most beef production is closely associated with sheep farming.

Most popular beef breeds are Aberdeen Angus, Herefords, and Shorthorn, in that order. The Aberdeen Angus Association has over 500 registered breeders and the Hereford Association about 200. Interest in the Shorthorn breed, which had been declining, now appears to be again gaining momentum. Redpoll and Galloway cattle are also used for stud purposes to a limited extent.

About 85 percent of the beef cattle in New Zealand are located on the North Island; however, beef cattle raising on the South Island has tended to show gains over recent years. The largest number of beef cattle are found on the east coast, north of Gisborne, extending to the Wairarapa, in North Auckland; in Raglan and Watomo Counties in Rangitikei County; and in the northern Manawatu.

In some instances, cattle from these farms are finished off on fat lamb farms, although this is not considered to be the most profitable method of using first-class land. Cattle on hill country farms are limited in number, since they are considered secondary to the sheep operation. Although cattle prove useful for pasture control purposes, it is necessary, especially in winter, to make special provision for them such as more efficient fences and water availability. On hill country property not improved to a stage considered adequate for fattening cattle, it is usual for cows to calve in August or September and for the cows to be mated again in late November or December. The calves are weaned when about eight months old and can then be sold to fat lamb farms as weaners or carried for another six months to a year before being sold for fattening.

On land that includes a fairly large proportion of rough terrain, cattle are sometimes kept until they are two to four years old, to trample fern and second growth. Generally, however, few cattle are being held to this age, because of progress in development of hill country land and price margins favoring the disposal of cattle at a younger age.

In New Zealand, slaughter at the age of 18–20 months, with the carcass weight at about 500–600 pounds, is considered ideal. Cattle slaughtered at the age of 2½ years and older are generally of poorer quality.

In recent years, there has been an increasing tendency for dairy farmers to use beef-type bulls (some by artificial insemination) on part of their herd to provide more of a beef-type animal. The normal procedure on dairy farms has been to sell surplus calves for slaughter at a very young age as "bobby calves." Since bobby calves produce only relatively low-priced meat, it is felt that crossbred calves from a dairy herd can be raised to an age where they can return more profit.

In February 1966, New Zealand's Agricultural Production Council estimated that 1.9 million rearable calves are born annually in the national dairy herd of 2 million cows in milk. Of this number, 570,000 are reared as dairy replacements and most of the balance (1.3 million) are slaughtered as bobby calves, mainly in the months of July, August, and September, with Auckland Province producing about two-thirds of the total. The Council pointed out that research and commercial farming practice, both overseas and in New Zealand, have shown that stock of dairy origin can be very profitably utilized for either veal or beef production. The Council felt that increased use of stock of this type for beef purposes would result in a substantial increase in national income and would also improve the over-all efficiency of New Zealand's agricultural economy. The Council also pointed out that of the 1.3 million calves that are now slaughtered annually as "bobbies", 161,000 are Friesians, 98,000 of the Friesian-Jersey cross, and 105,000 consist of milking Shorthorns, Ayrshire, and beef-bull crosses to give a total of 364,000. The Council concluded that all of these latter calves, that is 364,000, would be suitable for rearing either as beef or veal.

Total cattle numbers in New Zealand have been rising steadily and in 1966 totaled 7.2 million head, up from 6.8 million in 1965 and 5.9 million in 1956–60. This steady increase in numbers reflects in part increased domestic and export demand for beef.

Table 4.—CATTLE AND CALVES: Number and slaughter, average 1956–60, annual 1961–66

Year	Number on farms [1]	Slaughter [2]		
		Cattle	Calves	Total
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*
Average:				
1956–60	5,852	1,014	1,316	2,330
Annual:				
1961	6,445	996	1,297	2,293
1962	6,598	1,224	1,413	2,637
1963	6,691	1,282	1,412	2,694
1964	6,696	1,285	1,392	2,677
1965	6,803	1,139	1,231	2,370
1966 [3]	7,169	1,173	1,101	2,275

[1] As of January 31. [2] Year ending September 30. [3] Preliminary.

The hog industry

Practically all of New Zealand's hogs are raised by dairy farmers. Skim milk and whey provide most of the ingredients in hog rations except in areas near large cities where hotel and restaurant garbage is collected and used to a considerable degree.

More favorable outlets are currently being found for many byproducts of the dairy industry and as a result hog production has been adversely affected. For example, the number of hogs slaughtered in 1964 totaled about 1 million head; however, total slaughter in 1966 had dropped to about 850,000, with consequent shortages of pig meat on domestic markets.

Hog production, which now comprises about 5.4 percent of total meat production in New Zealand, is likely to continue as a relatively minor enterprise, despite efforts by government and associations to increase production.

Marketing

Meat export plants

There are 37 slaughter plants in New Zealand that are licensed to export meat. The plants operate under provisions of the Meat Act of 1964. Most large plants now have "on the rail" dressing facilities. The plants are highly mechanized and all are geared to operate under sanitary standards of the highest caliber. The plants also process some small amounts of byproducts of the meat industry such as tallow, sausage casings, and hides and skins.

New Zealand also has 24 export packinghouses licensed to pack meat for export. These packing plants must operate under the same high standards as the packing rooms at licensed meat export slaughter plants and are subject to the same rigid inspection system. Meat packed at an export packing house must originate from stock slaughtered in a licensed meat export slaughter plant.

Livestock diseases

Regulations pertaining to the control of infectious diseases of livestock are administered by the Animal Health Division of the Department of Agriculture. Authority for this activity is contained in the Stock Act which has been in effect since 1908. The Director of this Division is the Chief Veterinary Officer for New Zealand. He supervises the work done at five field offices located at strategic points throughout New Zealand. Special emphasis is placed on taking control measures pertaining to certain infectious livestock diseases which are listed in the Stock Act. Field veterinary officers also investigate deaths of livestock and disease outbreaks, and participate in projects for animal husbandry improvement work.

Examples of livestock disease measures currently being taken in New Zealand are as follows: (1) Dairy herds supplying milk for human consumption are required to be tested for tuberculosis at suitable intervals; animals found to be reactors are slaughtered and compensation is paid to the owners; (2) since January 1965, compulsory vaccination is required in an effort to combat brucellosis; (3) compulsory annual dipping is required as a means of controlling external parasites.

Meat inspection service

Meat inspection in New Zealand is conducted by the Meat Division of the Department of Agriculture. At present, the service has about 1,000 employees including 53 full-time veterinarians. To become a fully qualified meat inspector the apprentice is subject to a two-year training period and before final appointment must pass an examination specified by statute. Inspection in each plant is controlled by a Supervising Meat Inspector who generally has one or two Senior Meat Inspectors on his staff. The overall supervision of inspection work at each plant is the responsibility of a Government veterinarian who must see to it that the highest standards of hygiene and inspection are enforced at all times. The same high inspection standards apply whether meat is intended for domestic consumption or for export.

Grading meat for export

The New Zealand Meat Producers Board has the responsibility for supervising the grading of all meat that moves into export channels. New Zealand's grading system is standard throughout the country and reflects in detail consumer and trade requirements for the various types of meat produced.

Printing on wraps covering carcasses is as follows: First quality, blue; second quality, red; and manufacturing quality, black.

Beef and veal grades.—Beef is graded for export according to age, quality, weight, and condition. As used in connection with grading, the term G.A.Q. stands for "Good Average Quality" and F.A.Q. indicates "Fair Average Quality." Listed below are the various marks used by export plants to indicate the grade, weight, and condition of the product:

Beef:	*Grade mark*		*Grade mark*
G.A.Q. ox & heifer ex bodies:		G.A.Q. cow beef ex bodies, all weights	C
640 lb. and under	1	F.A.Q. cow beef ex bodies, all weights	CX
641/720 lb.	2	Veal:	
721/800 lb.	3	Prime veal, all weights	V
801 lb. and over	4	Second quality veal, all weights	VX
F.A.Q. ox & heifer ex bodies, all weights	X		

Lamb and mutton grades.—In New Zealand, lamb is defined as meat derived from ovine of either sex under 12 months of age at the date of slaughter. Most of the lamb exported from New Zealand generally comes from animals between the ages of 4 and 6 months.

Mutton is graded as either hogget, wether mutton, or ewe mutton. Wether mutton is meat derived from either a castrated male ovine showing no ram characteristics or a maiden ewe (a female sheep which has not lambed). Ewe mutton is meat derived from female sheep which have lambed. Hogget is meat derived from ovines beyond lamb classification which are wethers or maiden ewes showing not more than two permanent incisor teeth at time of slaughter. Carcasses exceeding 56 pounds are classified as ewes or wethers, whichever is applicable.

The following are the grade marks and weights under which mutton and lamb are sorted for export:

Lamb:	*Grade mark*
Prime:	
20/28 lb.	D
29/36 lb.	2
37/42 lb.	8
43/50 lb.	4
51/56 lb.	T
Second quality [1]	Y

Mutton:	*Grade mark*		*Grade mark*
Prime wethers and maiden ewes:		Prime ewes:	
48 lb. and under	1	48 lb. and under	1E
49/56 lb.	7	49/56 lb.	7E
57/64 lb.	3	65/72 lb.	9E
65/72 lb.	9	57/64 lb.	3E
73/80 lb.	5	73/80 lb.	5E
81 lb. and over	0	81 lb. and over	0E
Second quality [1]	X	Second quality [1]	XE

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[1] May be graded by exporters according to weights.

Grading meat for home market

Meat for domestic consumption is graded by officers of the Meat Inspection Service in slaughterhouses, and by plant employees under the supervision of meat inspectors in meat export plants. All grading is done according to specifications established by the New Zealand Standards Institute. Beef and mutton have four grades (first, second, third, and manufacturing). Veal, pork, and lamb have three grades (first, second, and manufacturing). Older lambs, or hoggets, have only one grade (first).

The grade is indicated by a series of colored stripes placed on the carcasses, red to indicate first quality; blue, second; yellow, third; and chocolate, manufacturing.

Minimum prices

The Meat Export Prices Act which became law in 1955 sets forth regulations pertaining to establishing floor prices for export meat.

Floor prices for the various classes of export meat are announced at the beginning of each season and remain unchanged throughout the season. Whenever the price of any class of meat (as indicated by the weekly listing of purchasing prices) falls below the floor price, a deficiency payment is made on all meat of that class sold during that particular week. Meat exporters add the deficiency payment to the price paid to producers and are later reimbursed for the amount by the Meat Board. The Board obtains the money for the payment from a reserve fund built up by the industry between 1939 and 1954 when export receipts over and above normal costs were paid into the fund rather than directly to the producer.

Under the Deficiency Payment System, 11 basic grades (one for each type of meat) are used in announcing floor prices. The payment is made, however, on all grades in each class of meat. None have been made since 1962.

Following are the minimum prices for the basic grades of export meat on North Island, for the year ending September 30, 1967:

Class of meat to which basic grade relates	Basic grade (North Island)	Minimum price per lb. Year ending Sept. 30 1966	1967
		U.S. cents	*U.S. cents*
Lamb	Prime Down Cross 29/36 lb.	18.67	18.96
Wether mutton	Prime 49/56 lb.	10.50	10.50
Ewe mutton	Prime 49/56 lb.	7.58	7.58
Chilled beef	Ox 680 lb. and under.	17.50	18.67
Ox & heifer quarter beef	Good average quality ox, 680 lb. and under.	17.50	18.67
Quarter cow beef	Good average quality, 600 lb. and under.	13.42	14.58
Boner, cow, ox, & heifer	301 lb. and over, boned-out value.	16.92	21.00
Boner bull	521 lb. and over.	16.92	21.00
Veal (sides or quarters)	Under 280 lb.	14.00	16.33
Porkers	Prime 60 lb. to 100 lb.	18.67	21.00
Baconers	Prime 111 lb. to 140 lb.	16.33	21.00

Meat Export Development Company

As part of an overall plan to develop new markets, the New Zealand Meat Board was given power in 1959 to export meat to countries that showed prospects of becoming better or future markets for New Zealand meat. In 1960, the Meat Export Development Company was formed to assist in promotional activity connected with exports. Shareholders in this company are the freezing companies trading in New Zealand. The Meat Board is not a shareholder; however, it does have a representative on the Board of Directors. Together with the Meat Board, the Export Development Company has the responsibility of developing the lamb market in North America.

Wool Commission

The New Zealand Wool Commission is a statutory body established by the Wool Commission Act of 1951. It consists of seven members appointed by the Governor General on the recommendation of the Minister of Agriculture. All members of the Commission are appointed for a term of three years and may from time to time be re-appointed. The principal function of the Commission is to insure minimum prices for New Zealand wool sold either in New Zealand or the United Kingdom at auction sales approved by the Commission. At any auction sale where wool is not bid in by a commercial buyer at more than a set floor price, the Commission is authorized to buy the wool at the floor price. The Commission then holds the wool off the market until such time as the market prices rise, generally the following season. The wool is then presented for auction in New Zealand or London.

New Zealand Wool Board

The New Zealand Wool Board was established by authority of the Wool Industry Act of 1944. Functions of the Board can be described as follows: (1) To promote the use of New Zealand's wool; (2) to promote research in relation to wool or sheep; (3) to act in conjunction with any similar overseas body for these purposes; (4) to exercise such above functions in relation to the production, handling, pooling, appraising, storage, distribution, marketing, and disposal of wool as may be conferred by the Wool Industry Act.

The Wool Board also has the authority to work in conjunction with the Meat and/or Dairy Board in carrying out any project considered beneficial to the wool industry.

The Wool Industry Act empowers the Wool Board to charge a levy on all wool exported or delivered to a manufacturer for use in New Zealand. This levy is used to finance operating costs and is paid to the Wool Board by the Wool Commission. The levy amounts to U.S. 1.60 cents per pound of wool sold, or U.S. $5.38 per bale.

New Zealand Meat Producers Board

The New Zealand Meat Producers Board was established under the Meat Export Control Act of 1922 and was given wide statutory powers to organize and coordinate New Zealand's meat export trade. The functions performed by the Board include: (1) Fostering healthy competition for producers' products; (2) maintaining standards of quality; (3) allocating shipping space; (4) world-wide promotional activities; (5) administering a minimum price scheme for export meat; (6) maintaining a market information service for producers and others.

Although the Board does not trade in meat, it is the central agency where all matters affecting the welfare of the meat industry of New Zealand are given constant attention.

Headquarters for the Meat Board are in Wellington, New Zealand, and offices are maintained in the United Kingdom, the United States, and Japan. Also, close contact with the meat trade is maintained by the Board through the New Zealand Government Trade Commissioner Service in many countries.

The Meat Export Control Act authorizes the Board to impose a levy on all meat exported to enable it to perform its functions. This levy today stands at about U.S. 1/10 cent per pound of meat exported.

The export market

Receipts from exports

Receipts from all livestock products have been trending upward and in 1966 totaled $741.4 million, compared with $449.1 million in 1954. Wool receipts were largest in 1966, totaling $343.8 million, followed closely by income from meat which totaled $304.4 million.

The economic stability of New Zealand's livestock and meat industry also depends to a considerable degree on the sale of byproducts in both domestic and world markets. Surplus production of many byproduct items which are sold for export add considerably to New Zealand's overall export earnings. For example, in 1966 export receipts from the sale of sheepskins and pelts totaled $41.7 million; sausage casings, $17.6 million; tallow, $10.9 million; hides and skins, $13.7 million; and other byproducts, $5.0 million.

Receipts from the sale of wool in foreign markets brought in $343.8 million in 1966.

Table 5.—Export income from livestock industry, by type, 1954, 1960, 1964–1966

Commodity	Year ended June					Changes in export income	
	1954	1960	1964	1965	1966	Increase	Percent of total increase
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Percent*
Meat	152.9	209.2	277.8	298.2	304.4	151.5	51.8
Wool	252.6	312.2	388.1	304.4	343.8	91.2	31.2
Sheepskins and pelts	20.2	27.7	32.8	34.4	41.7	21.5	7.3
Sausage casings	7.3	10.9	16.8	18.5	17.6	10.3	3.5
Tallow	5.6	9.8	11.5	11.8	10.9	5.3	1.8
Hides and skins	8.6	13.2	10.9	11.5	13.7	5.1	1.7
Meat byproducts	1.1	2.5	5.3	4.8	5.0	3.9	1.3
Livestock	.8	.8	1.7	2.2	4.2	3.4	1.2
Total [1]	449.1	586.3	745.4	685.4	741.4	292.6	99.8

[1] Due to rounding, figures do not always add to totals shown.

Source: New Zealand Government, *Annual Review of the Sheep Industry*, 1965/66, Publication No. 1350, August 1966.

Meat exports

Exports account for the disposition of a large portion of New Zealand's production of beef and veal, mutton and lamb. In 1966, 54 percent of beef and veal production, 44 percent of mutton, and 93 percent of lamb was sold overseas. Practically all meat exported is hard frozen. Generally, exports are at their peak during the July-September period. Volumewise, lamb exports were largest, totaling 650 million pounds, followed by beef and veal at 241 million, and mutton at 180 million. Exports of variety meats in 1966 totaled 61 million pounds. Pork exports, as expected, were relatively minor, totaling only 6 million pounds.

The United Kingdom is, by far, the major market for New Zealand's meat and meat products. In 1966, although New Zealand meat was shipped to about 40 different countries, exports to the United Kingdom accounted for 64.5 percent of the total, followed by the United States 14 percent, and Japan 13 percent.

The importance of the U.K. market is indicated by the following data on percentages of total New Zealand exports going to the United Kingdom in 1965–66:

	Percent
Lamb	92
Mutton	18
Beef	21
Pig meats	33
Offal	75
All meat	64

Shipments of meat by air from New Zealand, although still small, have shown substantial gains recently and in calendar year 1965 were up 54 percent from 1964. Practically all of this trade was in beef cuts flown to Tahiti, Singapore, Hong Kong, Fiji Islands, New Caledonia, Malaysia, and Australia, with a small amount going to Greece as well.

Table 6.—MEAT: Exports as a percentage of production by type, carcass weight equivalent, average 1956–60, annual 1961–66

Year [1]	Beef and veal	Mutton	Lamb	Pork	Total
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
Average:					
1956–60	57	49	95	17	67
Annual:					
1961	56	50	94	9	67
1962	58	51	93	8	67
1963	57	47	93	10	66
1964	57	50	93	11	67
1965	53	50	94	14	66
1966 [2]	54	44	93	2	65

[1] Year ending September 30. [2] Preliminary.

Wool exports

In the 1965/66 wool year, New Zealand wool exports totaled 611.4 million pounds, actual weight, and provided almost one-third of the total value of exports from the livestock industry. On a grease-weight basis, this was equal to about 657 million pounds. The major type shipped was classified in the "46/50's and coarser" category. As usual, the United Kingdom continued as the major market, taking 138 million out of the 611 million pounds exported. France and the United States were also sizable importers, taking 98 and 96 million pounds, respectively. Trade with Japan increased substantially in 1966, totaling 65 million pounds compared with 35 million in 1965.

Hide and skin exports

New Zealand's cattle hide and calf skin exports totaled 43.5 million pounds in 1966. Italy was the chief market,

Table 7.—MEAT: Exports by type, product weight, average 1956–60, annual 1961–66

Year [1]	Beef and veal	Mutton	Lamb	Pork	Edible offals	Total chilled & frozen meat	Canned meats	Total meat
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Average:								
1956–60	243	146	504	12	39	944	9	953
Annual:								
1961	213	170	592	5	43	1,023	6	1,029
1962	265	190	603	6	47	1,111	7	1,118
1963	270	165	606	11	54	1,106	6	1,112
1964	262	181	630	11	58	1,142	6	1,148
1965	206	136	598	3	60	1,003	6	1,009
1966 [2]	241	180	650	6	61	1,138	6	1,144

[1] Year ending September 30. [2] Preliminary.

Table 8.—MEAT, FRESH, FROZEN OR CHILLED: Exports by country of destination and type, product weight, year ending September 30, 1966

Country of destination	Lamb	Mutton	Beef and veal	Pork	Variety meats	Total
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
United Kingdom	599	32	51	2	46	730
United States	13	(1)	148	(1)	1	162
Japan	4	132	7	(1)	1	144
Germany, West	1	4	2	---	---	7
West Indies	3	2	12	2	2	21
Canada	16	(1)	3	---	(1)	19
Other countries	14	10	[2] 18	2	[3] 11	55
Total	650	180	241	6	61	1,138

[1] Less than 500,000 pounds. [2] Includes 4 million pounds to other EEC. [3] Includes 6 million pounds to EEC.

Table 9.—WOOL: Exports by country of destination, actual weight, 1961–66

Country of destination	1961	1962	1963	1964	1965	1966
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*
United Kingdom	172	153	138	148	127	138
France	92	93	94	86	80	98
United States	68	75	88	73	66	96
West Germany	29	36	39	32	42	36
Belgium	42	47	38	46	49	49
Italy	29	41	36	32	30	34
Japan	41	19	34	26	35	65
Netherlands	14	17	18	19	10	12
U.S.S.R.	8	---	---	4	9	15
Poland	4	7	4	5	4	2
Czechoslovakia	8	3	1	5	3	3
China (Mainland)	3	2	4	7	8	10
Canada	4	5	3	6	5	7
Sweden	3	3	2	1	4	4
Portugal	3	4	4	4	6	6
Other countries	35	40	60	59	70	36
Total	555	545	563	553	548	[1] 611

[1] Preliminary.

taking 13.5 million. Other leading markets were Japan, the United Kingdom, West Germany, Poland, and the Netherlands.

Table 10.—LIVESTOCK PRODUCTS: Exports by type, annual 1962–66

Year [1]	Wool [2]	Sheep and lamb skins	Cattle hides and calf skins	Tallow edible and inedible
	Million pounds	*Thousand pieces*	*Thousand pieces*	*Million pounds*
Annual:				
1962	360	29,682	1,935	130.0
1963	601	28,454	2,140	127.6
1964	606	31,349	2,184	163.7
1965	563	28,208	2,106	123.2
1966	657	27,517	1,967	108.9

[1] Year ending June 30. [2] Greasy basis.

The United States is the major importer of sheep and lamb skins from New Zealand. In 1966, the trade totaled 37.2 million pounds, or 52 percent of total exports in this category. The United Kingdom ranked second with 10 million pounds.

Tallow exports

Exports of tallow from New Zealand have been averaging about 130 million pounds per year. The United Kingdom is the major market, generally taking about one-third of total exports. In recent years, most of the balance has been moving to Mainland China, Japan, the Republic of South Africa, and Malaysia.

Potential for increased production

New Zealand has the potential to increase meat production substantially in future years; the rate of realizing it, however, will depend to a great extent on the continued implementation of recommendations made under the auspices of the Agricultural Development Conference held in 1963–64.

Realizing the need for increased income from overseas sources, the New Zealand Minister of Agriculture set up in October 1963 a Target Committee as a preliminary step towards sponsoring a full-fledged Development Conference. The objective of this Conference was two-fold: (1) To establish targets for farm products in the decade ahead; that is, to 1972-73; and (2) to suggest ways and means of achieving these goals. The report of the Target Committee was adopted at a meeting of the Agricultural Development Conference held on March 3, 1964. Briefly, this report indicated that unless corrective measures were taken, the number of livestock units (on a ewe-equivalent basis [2]) would be far less than the total units needed to meet established production goals. The Committee estimated that 111 million units would be needed by 1972-73 compared with 80 million units on hand as of June 1962. The Committee also concluded that the expected growth rate of 2.3 percent per year would have to be increased to at least 3.5 if this target were to be reached on schedule.

The Conference has made over 100 recommendations to the Government regarding ways to increase the rate of livestock production. In this respect, participants have investigated all aspects of farming, including agricultural finance, manpower, labor costs, land tenure, and taxes. Thus far, many of the recommendations of the Conference have been adopted and implemented with good results.

Livestock numbers in 1964–65 rose by 3.3 percent—close to the target rate. In 1965–66, it is estimated that livestock units will have risen by another 8.5 percent. Over the past 4 years, the overall increase in livestock units has been 16 percent—about 4 percent per year. This

Table 11.—CATTLE HIDES AND CALF SKINS: Exports by country of destination, 1963–66, year ending June 30

Country of destination	1963	1964	1965	1966
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*
Italy	17.1	19.7	14.5	13.5
Australia	5.5	3.5	1.8	1.6
West Germany	6.4	4.6	6.9	3.7
United Kingdom	3.1	2.8	6.4	5.3
Japan	9.1	4.7	2.5	6.6
Yugoslavia	1.0	3.9	1.2	---
Poland	1.2	2.5	2.8	3.4
Netherlands	2.9	1.8	3.2	3.1
Norway	0.9	1.3	1.3	0.8
United States	0.1	0.9	0.6	---
Finland	0.1	0.1	0.2	0.4
Spain	2.0	1.1	1.8	1.7
China, Mainland	0.3	0.1	0.6	1.8
Denmark	---	0.1	0.3	1.6
Total	49.7	47.1	44.1	43.5

Table 12.—SHEEP AND LAMB SKINS: Exports by Country of destination, 1963–66, year ending June 30

Country of destination	1963	1964	1965	1966
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*
United States	34.4	38.2	35.2	37.2
United Kingdom	10.8	14.6	15.0	10.0
Netherlands	4.9	5.9	5.3	5.3
Belgium	7.5	7.6	8.5	7.2
France	9.8	8.2	4.6	5.2
Italy	2.3	2.7	2.1	2.2
West Germany	3.3	2.4	1.0	1.2
Spain	2.4	1.6	1.5	2.1
Other countries	1.2	1.4	0.9	1.6
Total	76.6	82.6	74.2	72.0

Table 13.—TALLOW AND GREASES: Exports by country of destination, average 1956–60, annual 1962–66

Country of destination	Average 1956–60	1962	1963 [1]	1964 [1]	1965 [1]	1966 [1]
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*
United Kingdom	52	36	17	41	43	(2)
China, Mainland	7	34	31	40	11	(2)
Japan	11	9	5	18	15	(2)
South Africa, Republic of	6	12	10	14	11	(2)
Malaysia	---	2	3	9	9	(2)
India	7	10	9	8	3	(2)
Ceylon	2	4	9	4	1	(2)
Rhodesia	3	4	2	4	3	(2)
Burma	4	8	7	3	3	(2)
Kenya	1	5	--	3	4	(2)
West Indies Federation	7	3	3	3	--	(2)
Mozambique	1	4	3	1	3	(2)
Netherlands	3	1	--	--	4	(2)
Australia	5	--	--	--	1	(2)
Other countries	9	7	32	17	14	(2)
Total	118	139	131	165	125	[2] 110

[1] Year ending June 30. [2] Preliminary; breakdown not available.

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[2] Livestock have been converted to "ewe equivalents" in the following ratios:

Sheep:		Dairy cows:		Other cattle:	
Ewes	1.0	Cows in milk	7.0	Beef breeding cows	5.0
Other sheep	.8	Other cows	4.0	Heifers 2 yrs & over	5.0
				Other cattle	4.0

increase has been encouraged by a major liberalization in import policy concerning equipment and other import needs of the farmer. There has been a large increase in farm investment, in part public financed.

If the current and past trend continues as expected, there appears to be little doubt that New Zealand producers can—and will—reach the established goal of 111 million livestock units (ewe equivalent basis) by 1972–73.

Competition with U.S. producers

New Zealand's latest Agricultural Development Program is expected to bring about substantial gains in livestock numbers as well as in production of beef, veal, mutton and lamb, over the next decade. The Program will continue to stress such projects as land development, tax deductions to encourage capital investment, increased use of aerial top-dressing, irrigation, and transportation developments. This means that New Zealand will continue to offer competition to U.S. livestock and meat product producers. As in the past, this competition will come mostly from boneless manufacturing meats such as those coming from lower-grade cows, bulls, and mutton.

Although part of the expansion in meat production will move into domestic consumption channels, increased exports are also forecast, primarily to the United States and Japan.

U.S. and New Zealand livestock producers will continue to compete in world markets with such livestock product items as cattle hides, calfskins, variety meats, and tallow and greases.

Most of the wool imported from New Zealand by the United States is carpet wool, which enters duty-free.

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